



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,815	08/21/2003	Zine-Eddine Boutaghou	S01.12-0992	8036

27365 7590 10/26/2006

SEAGATE TECHNOLOGY LLC C/O WESTMAN  
CHAMPLIN & KELLY, P.A.  
SUITE 1400  
900 SECOND AVENUE SOUTH  
MINNEAPOLIS, MN 55402-3319

EXAMINER

CHEN, TIANJIE

ART UNIT PAPER NUMBER

2627

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/645,815

Applicant(s)

BOUTAGHOU ET AL.

Examiner

Tianjie Chen

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 and 28-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-21 is/are allowed.
- 6) ☒ Claim(s) 28, 29, 31 and 32 is/are rejected.
- 7) ☒ Claim(s) 30, 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### ***2<sup>nd</sup> Non-Final Rejection***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 28, 29, 31, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Katsumata (US 2001/0030836).

Claim 28, Katsumata shows a suspension interconnect in Fig. 3, including : a suspension 24 ([0055]); a conductive element 82 (Fig. 8, ([0079]) positioned on the suspension 24; a heating element 50 ([0056] and [0010]) positioned on the suspension and including a low resistivity portion 81 (Fig. 8, [0079]) and a high resistivity portion (the inherent semiconductor layers in 50); and insulating component 85 ([0079]) positioned between the conductive element and the heating element.

Claim 29, Katsumata shows that the high resistivity portion has a smaller thickness than the low resistivity portion 81.

Claim 31. Katsumata shows at least two bond pads 81 are electrically interconnected to at least two conductive elements 82.

Claim 32, Katsumata shows a flex circuit in Figs. 2 and 8 including the heating element.

***Allowable Subject Matter***

3. Claims 1-21 are allowed.

Claims 30 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With regard to independent claim 1, as the closest reference on record, Tam et al (US 5,421,943) discloses a slider body having a trailing edge face; a bond pad positioned on the trailing edge; a heating element including a low resistivity portion and a high resistivity portion; **but fails to show** conductive trace connected to the bond pad to form an electrical connection; the high resistivity portion positioned proximate the electrical connection; and an insulating component positioned between the conductive trace and the heating element proximate the electrical connection.
- With regard to independent claim 13, as the closest reference on record, Schott (US 6,349,017) discloses a suspension assembly comprising: a suspension; a slider body supported by the suspension and having a trailing edge face and at least one bond pad positioned on the trailing edge face; and means for providing an electrical connection between a conductive trace and the at least one bond pad ; **but fails to show** that means for providing an electrical connection between a conductive trace and the at least one bond pad using a heating element positioned on the suspension, the heating element having a high resistivity portion and a low resistivity portion.
- With regard to claim 30, the closest reference Katsumata (US 2001/0030836) **fails to show** that the high resistivity portion includes an undulating pattern.

Art Unit: 2627

- With regard to claim 33, the closest reference Katsumata (US 2001/0030836) **fails to show** that the heating element is adapted to provide heat to a bonding component, wherein the bonding component provides an electrical conduit.
- Applicant asserts: in conventional structure, weak interconnect leads to an increased potential failure mode of the electrical connection between the slider bond pads and the FOS bond pads. Embodiments of the present invention address to these and other problems (Specification, p. 2).

***Response to Arguments***

4. Applicant's arguments with respect to claim 28 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571 272 7570. The examiner can normally be reached on 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nguyen Hoa can be reached on 571 272 7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
TIANJIE CHEN  
PRIMARY EXAMINER